



## A Literature Review of Cross-Cultural Factors Affecting Polygraph Testing

Richard E. Doll, Ph.D., Joseph G. Law, Jr., Ph.D.  
and Chris Piotrowski

May 1990

Department of Defense Polygraph Institute  
Fort McClellan, Alabama 36205-5114  
Telephone: 205-848-3803  
FAX: 205-848-5332

DISTRIBUTION STATEMENT A

Approved for public release;  
Distribution Unlimited

19960221 141

DTIC QUALITY INSPECTED 1

Encl d

# REPORT DOCUMENTATION PAGE

*Form Approved  
OMB No. 0704-0188*

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

<b>1. AGENCY USE ONLY (Leave blank)</b>			<b>2. REPORT DATE</b> May 1990		<b>3. REPORT TYPE AND DATES COVERED</b> Final Report (August 1989 - May 1990)		
<b>4. TITLE AND SUBTITLE</b>  A Literature Review of Cross-Cultural Factors Affecting Polygraph Testing			<b>5. FUNDING NUMBERS</b>  DoDPI89-P-0004				
<b>6. AUTHOR(S)</b>  Richard E. Doll, Joseph G. Law, Jr., and Chris Piotrowski							
<b>7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)</b>  The Bass Group Pensacola, Florida			<b>8. PERFORMING ORGANIZATION REPORT NUMBER</b>  DABT02-89-C-0120				
<b>9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)</b>  Department of Defense Polygraph Institute Building 3165 Fort McClellan, AL 36205-5114			<b>10. SPONSORING/MONITORING AGENCY REPORT NUMBER</b>  DoDPI90-R-0004 DoDPI89-P-0004				
<b>11. SUPPLEMENTARY NOTES</b>     							
<b>12a. DISTRIBUTION/AVAILABILITY STATEMENT</b>     Public release, distribution unlimited				<b>12b. DISTRIBUTION CODE</b>			
<b>13. ABSTRACT (Maximum 200 words)</b>  This report contains the results of a literary review of cultural factors which could influence the validity of polygraph examinations. Five general cultural factors were selected for study. For the purpose of this review, culture is defined by geographic area. The methodology consisted of a computer search of 11 databases. Telephone interviews were conducted with individuals actively involved in cultural research. Finally, an on-site visit to the University of Florida was conducted to allow for review of the Human Relations Area Files (HRAF). In addition to the literature review, a rational deductive approach is developed based upon Hofstede's model of cultural differentiation.							
<b>14. SUBJECT TERMS</b>     cross-cultural factors, anxiety, avoidance, polygraph					<b>15. NUMBER OF PAGES</b> 68		
<b>17. SECURITY CLASSIFICATION OF REPORT</b>  Unclassified		<b>18. SECURITY CLASSIFICATION OF THIS PAGE</b>  Unclassified		<b>19. SECURITY CLASSIFICATION OF ABSTRACT</b>  Unclassified		<b>20. LIMITATION OF ABSTRACT</b>	

Report No. DoDPI90-R-0004

A Literature Review of  
Cross-Cultural Factors Affecting  
Polygraph Testing

Richard E. Doll, Ph.D., Joseph G. Law, Jr., Ph.D.  
and Chris Piotrowski

May 1990

Department of Defense Polygraph Institute  
Fort McClellan, Alabama 36205

### Director's Foreword

This study represents an interesting but difficult undertaking designed to identify cultural factors which could influence the validity of psycho-physiological detection of deception (PDD) tests. This issue is important in that American PDD examiners are increasingly confronted with situations, both at home and abroad, wherein the examinee is a member of a different culture.

The complexity of this undertaking is evidenced by the fact that of the more than 150 definitions of the word "culture," no single definition is widely accepted, thus making it unfeasible to adopt a classic anthropologistic definition. Add to this the dramatic differences between individuals within a culture and the challenges for the PDD examiner become evident.

A literature search by the authors could not identify any existing scientific evidence to suggest that cross-cultural factors have an impact on the validity of PDD tests. In fact, there is a paucity of research which even attempts to address these issues. While this study was unable to provide any specific answers to the myriad of questions surrounding this topic, it is valuable as a reminder of a vast, unexplored research area within the discipline of Forensic Psychophysiology. Examiners and researchers alike should remain vigilant for data and other clues that will add clarity to this interesting puzzle.



Michael H. Capps  
Director

#### Acknowledgments

This research was sponsored by the Department of Defense Polygraph Institute (DoDPI) project DoDPI89-P-0004, under a contract administered by the Directorate of Contracting, United States Department of the Army (contract DABT02-89-C-0120). The views expressed in this article are those of the authors and do not reflect the official policy or position of the Department of Defense or the U.S. Government.

## ABSTRACT

### A Literature Review of Cross-Cultural Factors

#### Affecting Polygraph Testing

This report contains the results of a literary review of cultural factors which could influence the validity of polygraph examinations. Five general cultural factors were selected for study. For the purpose of this review culture is defined by geographic area. The methodology consisted of a computer search of 11 databases. Telephone interviews were conducted with individuals actively involved in cultural research. Finally, an on-site visit to the University of Florida was conducted to allow for review of the Human Relations Area Files (HRAF). In addition to the literature review a rational deductive approach is developed based upon Hofstede's model of cultural differentiation.

## Table of Contents

Title Page . . . . .	i
Director's Foreword . . . . .	ii
Acknowledgments . . . . .	iii
Abstract . . . . .	iv
List of Tables . . . . .	vi
Introduction . . . . .	1
Definition of Culture . . . . .	4
Method . . . . .	7
Databases . . . . .	8
Search Terms . . . . .	8
Results and Conclusions . . . . .	10
Review of the Literature . . . . .	10
Truth, Lying, Shame and Guilt . . . . .	10
Belief in the Validity or Efficacy of Detection of Deception . . . . .	14
Cultural Tradition of Autonomic Control . . . . .	15
Ability to Control Self-Presentation . . . . .	16
Tester/Testee Interactions and Critical Examiner Behavior . . . . .	22
A Rational-Deductive Approach . . . . .	27
More Developed Asian-Japan . . . . .	33
Near Eastern Cultures . . . . .	34
Less Developed Asian . . . . .	34
Middle Eastern . . . . .	36
The Latin Countries . . . . .	37
The Germanic Countries . . . . .	38
References . . . . .	46
Appendix A: Databases Searched by Computer . . . . .	A-1
Appendix B: Training Individuals to Interact with Collectivists . . . . .	B-1

### List of Tables

1. Ten Countries Highest in Power Distance (PDI), with Relative Rankings in Uncertainty (UAI), Individualism (IDV) and Masculinity (MAS) . . . . .	30
2. Ten Countries Lowest in Power Distance (PDI) with Relative Rankings in Uncertainty Avoidance (UAI), Individualism (IDV) and Masculinity (MAS) . . . . .	31
3. Potential International Approaches Using Hofstede's (1980) Dimensions Across Cultures . . . . .	41

## INTRODUCTION

If surveyed, the typical person on the street might provide responses such as the following: "Germans are hard working, the French are obsessed with sex, Mexicans are lazy, and Orientals are sneaky." Such descriptions are attempts at the non-scientific level to describe perceived characteristics of a culture. There is considerable research in the anthropological literature in which highly trained researchers attempt to formulate descriptions of the typical German, Frenchman, Japanese, etc.. The purpose of these attempts by the layman and the scientist is to enable that person to understand the behavior and to predict the behavior of individuals whom he or she has never seen. The goal of a polygraph examiner in being able to understand the cultural effects of behavior on a potential examinee are evident. If the polygraph examiner can predict to some degree of certainty how a given individual will respond in the examination process, he or she can adjust behavior accordingly to ensure a properly administered examination and to maximize the possibility of obtaining a confession from deceptive subjects.

The problem in predicting the impact of cultural factors on behavior is complicated. Going from general predictions about a culture as a whole to specific predictions about a particular individual significantly reduces an examiner's predictive powers.

With these cautions in mind, one may proceed with the realization that there are common themes, beliefs, values, and attitudes which vary significantly from culture to culture.

The polygraph examiner faces two major challenges when testing subjects from another culture. The first goal is to maximize the validity of the exam itself by assuring that cultural differences do not bias the basic procedure. Directing the examinee's psychological set well enough to obtain interpretable charts requires a basic familiarity with that examinee's culture. For example, Russell's (1989) circumplex model of emotions indicated that anger is common to all cultures and (at least in the ones he studied) is close to the emotion of fear physiologically and psychologically. The examiner's task is, therefore, to maximize fear of detection while avoiding treading on the subject's culturally-determined values, thereby possibly producing invalid results.

DODPI Research, Fort McClellan, Alabama, has undertaken an effort to determine how cultural factors may (or may not) impinge on physiological responses of individuals during polygraph examinations. The existence of such impingements can obviously have a direct influence on the validity of polygraph administrations and, in turn, enhance or detract the detectability of deception through clinical judgments and affect the inducement

of confessions to crimes before, during, or after a polygraph examination.

In an effort to determine such factors DODPI, by the way of Requests for Proposals (RFP's), awarded a contract to The Bass Group (TBG) of Pensacola, Florida. The contract divides the effort into three phases. Phase I entails an extensive literature review seeking out research related to each of the following general factors:

- (1) Truth, lying, shame and guilt.
- (2) The belief in the validity or efficacy of detection of deception.
- (3) Cultural tradition of autonomic control.
- (4) Ability to control self-presentation.
- (5) Tester/testee interactions and critical examiner behavior.

Phase II of this research effort will consist of TBG's designing a questionnaire reflecting the results of Phase I. It is DODPI's intention to administer this questionnaire to polygraph examiners who have experience and expertise testing foreign nationals. Finally, in Phase III, TBG will develop a written position paper suggesting a prioritized program of research relating to the whole issue of cross-cultural factors and physiological responses to polygraph testing. The present report

contains the results of Phase I.

#### Definition of Culture

At the outset, DODPI and TBG grappled with the definition of culture in an attempt to provide an operational definition. It became clear that providing a definition of culture had incurred the time and energy of several respected authors.

Tylor (1877) is recognized as the first to use the word culture in English as generally accepted by most anthropologists and sociologists. Tylor defined culture as "that complex whole which includes knowledge, belief, art, morals, law, custom, and any other capabilities and habits acquired by man as a member of society" (p. 1).

Linton (1945) defined culture as "the configuration of learned behavior and results of behavior whose component elements are shared and transmitted by the members of a particular society" (p. 1). Barnow (1985) makes the point that several authorities while liking the integration stressed in this definition objected to the inclusion of "results of behavior" in the definition.

Bockner (1982) points out that Kroeber and Kluckhohn (1952) reviewed over 150 definitions of culture, all of them plausible, and that inordinate amounts of time could be dedicated to exploring their relative merits without resolving the issue.

Brislen (1983) in discussing definitions of cultures identifies

the definition by Krober and Kluckhohn as being the most widely accepted which included elements such as "patterns, explicit and implicit, of and for behavior acquired and transmitted by symbols, constituting the distinctive achievements of human groups . . . (and) ideas and their attached values " (p.367). Brislin echoes Bockner when he states that there is no one definition of culture which is widely accepted.

Triandis (1980) states that:

Culture is one of those motions that are ever present in the work of social scientists, but one that has been defined in so many different ways that no consensus has emerged . . . An important aspect of culture is that it does have structure and it is patterned . . . Cross-cultural refers to comparisons of cultures. This immediately raises the question of what units to be compared. Some cross-cultural psychologists compare cultural units. Others compare larger units, including nations. There are conceptual problems in comparing nations, races, religions, or any other large groupings of people since there is tremendous heterogeneity among the people in such units. In spite of this obvious disadvantage, it is sometimes necessary and fruitful to compare larger units (p.2).

It became evident to the authors of the present study that

it was not feasible to adopt a classic anthropologistic definition of culture. To do so, for instance, would not have allowed for studies involving West Germany or East Germany to be included in the study. Examination of the psychological literature clearly suggested that the vast majority of studies entitled "cross-cultural" involved comparisons across countries. For purposes of this study the review of the literature includes comparisons between and among countries or possessions fully recognizing that within any one country or possession there may exist several cultures. The following were considered for inclusion in this review of the literature:

- |               |                   |                  |
|---------------|-------------------|------------------|
| 1. Argentina  | 11. Israel (Jews) | 21. Singapore    |
| 2. Austria    | 12. Italy         | 22. Soviet Union |
| 3. Brazil     | 13. Japan         | 23. Spain        |
| 4. Chile      | 14. Mexico        | 24. Taiwan       |
| 5. Columbia   | 15. New Zealand   | 25. Thailand     |
| 6. France     | 16. Pakistan      | 26. Turkey       |
| 7. W. Germany | 17. Peru          | 27. USA          |
| 8. E. Germany | 18. Philippines   | 28. Venezuela    |
| 9. Greece     | 19. Portugal      | 29. Yugoslavia   |
| 10. Hong Kong | 20. South Africa  |                  |

## METHOD

The search strategy for this literature review consisted of three major approaches: (1) a multi-database strategy that used input terms "culture" or "cultural factor" AND "polygraph" or "lie detector", (2) combining "cultural factors" or "cross-cultural" terms with each of approximately 25 major descriptors or terms deemed relevant to factors viz, physiological, psychological, sociological that might influence the validity of a polygraph exam, and (3) utilizing a similar search strategy as noted in (2) with each of 29 countries or possessions. The intent was to obtain a broad, comprehensive search using a variety of specific culturally related terms across several key databases.

There were several reasons for adopting the above approaches. The strategy of combining "cross-cultural factors" with "polygraph" unfortunately produced disappointing retrieval results. Apparently, there is a dearth of research on this topic in the open literature. Thus, it was decided to select "key terms" that tap on cross-cultural factors which may have an influence on polygraph validity. These "key terms" were determined by selectively choosing major areas that have a demonstrated influence on cross-cultural research in general. Various textbooks on polygraph/lie detector and cross-cultural research were selected from Books in Print and their contents

studied. In addition, major books in sociology and psychology with an emphasis on cultural factors were pursued for major areas and topics that have shown to have inter-cultural influences. From this investigative approach a number of major areas and topics were selected as descriptors and identifiers (input) terms for the multi-database strategy and computer searches.

#### Databases

The following databases were searched by computer: (1) Biosis Previews, (2) Embase, (3) Legal Resource Index, (4) Medline, (5) Mental Health Abstracts, (6) National Criminal Justice Reference Service (NCJRS), (7) National Technical Information Service (NTIS), (8) Public Affairs Information Service (PAIS International), (9) Psycinfo (Psychological Abstracts), (10) Social Scisearch, and (11) Sociological Abstracts. A description of each of these databases can be found in Appendix A.

#### Search Terms

The following are the search terms employed in database searches:

- |                                 |                            |
|---------------------------------|----------------------------|
| 1. Physiological Reactivity     | 6. Acculturation           |
| 2. Galvanic Skin Response (GSR) | 7. Intelligence (IQ)       |
| 3. Autonomic Reactivity         | 8. Birth Order/Family Size |
| 4. Blood Pressure               | 9. Lying                   |
| 5. Socialization                | 10. Truth/Truthfulness     |

- |                          |                        |
|--------------------------|------------------------|
| 11. Guilt                | 20. Paranoia           |
| 12. Self-Disclosure      | 21. Discipline         |
| 13. Values               | 22. Defense Mechanisms |
| 14. Sexual Mores         | 23. Fear               |
| 15. Stress               | 24. Interrogation      |
| 16. Anxiety              | 25. Suggestibility     |
| 17. Emotions             | 26. Confession         |
| 18. Deceit               | 27. Deception          |
| 19. Attribution of Blame |                        |

In addition to the above-listed computer searches the authors conducted a two-day on-site visit to the University of Florida library in Gainesville, Florida, in order to access the Human Relations Area Files (HRAF). HRAF is a private, nonprofit educational institution which has compiled achieves consisting of over 800,000 pages of text on over 330 different cultures (Levinson, 1989). A thesaurus titled The Outline of Cultural Materials contains general and specific descriptors which can be used to assist researchers in finding particular topics. Research noted by Levinson (1989) indicates that using the subject-category codes provided in The Outline of Cultural Materials will allow most researchers to find 90 percent or more of available archival materials on any given subject.

In an effort to supplement data that exists in the open

literature and archives TBG conducted several phone interviews with noted authors who are presently involved in cross-cultural research. While this effort, in general, produced minimal results, it did on occasion prove fruitful.

#### RESULTS AND CONCLUSIONS

This section is divided into two parts, viz, (1) a review of the literature and (2) a rational deductive approach based upon Hofstede's (1980) theory of cultural differentiation.

##### Review of the Literature

It should be stated at the outset that there exists a paucity of data which directly relates to the five factors outlined in the Introduction. It quickly became evident that the cross-cultural literature, especially the anthropological literature, is replete with anecdotes, personal observations, and judgments. While such data can be useful there is some hesitancy to allow them to serve as the foundation for establishing procedural standards for testing such as polygraph examinations.

##### Truth, Lying, Shame and Guilt

It was rather surprising to the authors that there exists relatively little research in the open cross-cultural literature on the subjects of truth, lying and shame. One is tempted to speculate that these topics are laden with such negative stigma that researchers have purposefully avoided their investigation.

William R. Johnson (1987) was a former military intelligence agent during World War II and worked for the Central Intelligence Agency for 30 years. In an article entitled "Ambivalent Polygraph" he made a number of observations about testing in cross-culture situations:

The polygraph operator working overseas learns to modify this theory somewhat. He finds that it applies uniformly to the sexual conscientiousness of Northern Europeans, natives of the British Isles, and Americans, who share a common guilt-culture, but less so to Latin Americans, Southern Europeans, and Middle-Eastern Moslems, and it applies hardly at all to Southeast Asian non-christians . . . Fortunately, however, sex is not everything. In most cultures, speaking truth is a virtue and lying is a vice. Even with those subjects whose culture has conditioned them to say, out of politeness, what will please their host, the experienced operator can create an interpersonal situation in which the subject feels obligated to speak the truth to the interrogator whether or not it be polite (Johnson, 1987, p. 300).

However, truth while being considered a virtue in most countries can vary in terms of its importance. For instance Howard, Shudo, and Umeshima (1983) comparing Japanese and American

business managers on the Rokeach Values Survey found the Japanese to score significantly higher on the Honesty scale. Russians feel duty to be the highest of motives the one ". . . to which all others are to be subordinated" (Bauer, 1952, p. 140). The Russians value truth among their fellow citizens but will unhesitatingly lie if they perceive doing so as a duty to the state. Mead (1951) points out that "Communists will try to compensate for their professional severity and are often more honorable in their personal relations than people who effect ethics" (p. 32). Confucian teachings emphasize moral ideals and place the virtue of social justice above any considerations of utility (Wu, 1967). Danton (1938) notes that many foreign visitors to China feel that the Chinese do not have a conception of truth and will lie under any circumstances.

Dorothy Lee (1953), a native Greek who conducted ethnographic research for UNESCO, states that honesty and obedience are important and are taught to children from the beginning, but this is taught in the framework of personal relationships with family and immediate friends and not to other groups.

Dickson (1949) observes that the cultural tradition of Rojal Kahoir suggests that lying to prevent problems between people is acceptable in the Arab culture. In the case of deceptive

subjects, the polygraph examiner may take the approach during the interrogation that he or she understands the examinee was attempting to serve as a Raja Kahair but that telling the complete truth is the more appropriate way to be a good person.

Discussion on the topic of shame and guilt emanates more from observations and subjective judgments rather than experimental research. Mead (1951) in discussing the conflict between the severity of the Russian's allegiance to the state and his inner conscience states "calm consciousness as a result of awareness of duties fulfilled gives man immense joy and the one who experiences torments of conscience from bad actions bridges a social duty, feels terribly oppressed" (p. 47).

There is indirect evidence in the anthropological literature to support the notion that the Japanese could experience both guilt and shame sufficient to arouse physiological indices of deception (DeVos, 1960, 1968).

Gorkin's (1986) article on counter-transference in cross-cultural psychotherapy is worth noting. In studying Jewish psychotherapists who were treating Arabic patients, the emphasis was on how the therapists felt toward their patients because of their ethnic and religious differences. Counter-transference addresses the issues which arise when the therapist projects his or her values and feelings onto the patient; or when the patient's

appearance, characteristics, or values trigger strong feelings in the therapist. Gorkin found that the therapists (in one-up positions due to their status as therapists) tended to feel guilt about Israeli-Arab relations and let that guilt affect their perceptions of Arabs. That is, although "one-up" due to their official status, the therapists tended to feel "one-down" due to guilt. Also, their curiosity about Arab culture often led them to explore details about the patient's life-style rather than focus on her or his psychological problems.

Gorkin's ideas are important for polygraph examiners because they illustrate potential pitfalls. Becoming too concerned about a subject's culture can distract the examiner from observing important nonverbal behavior. It is also necessary to be attuned to positive and negative feelings about other cultures so that such attitudes do not lead the examiner into projecting his or her feelings into the interpretation of polygraph charts.

#### Belief in The Validity/Efficacy of Detection of Deception

No cross-cultural studies exist, to the knowledge of the authors, which directly a culture's belief values in terms of detecting deception. However, Barland (1988) reports that there are six countries with a major polygraph capability, viz, in the order of estimated number of examiners: (1) USA, (2) Canada, (3) Japan, (4) Turkey, (5) South Korea, and (6) Israel. Barland also

estimates there to be at least thirty other countries with one or more polygraph examiners. It is probably safe to assume that the polygraph is employed by the Soviet Union and perhaps other communist countries.

However, use of the polygraph is not a perfect criterion for determining a cultures belief in the validity of measures of detection. In some countries such as Germany the technique was declared illegal for use by both the courts and the law enforcement agencies not because it was considered to be invalid but rather because it was seen as an encroachment upon the freedom of the individual (Kaginiec, 1956). In Holland the instrument is rendered useless since the examinee is not required to render any assistance nor ask any questions (Meyer, 1961).

#### Cultural Tradition of Autonomic Control

Some cross-cultural experimental studies investigating autonomic control do exist. Guthrie (1975) states that despite a common autonomic nervous system culturally different groups of people have different psychophysiological reactions to stressful situation. However, this finding should not be surprising since stress is a function of the perception more so than the function of the stressor. Such perceptions are clearly modified and molded by the values, attitudes and mores of each culture.

Kugelmass and Lieblich (1968) reported that subjects of Near

Eastern origin tended to have lower pulse rates, higher basic skin conductance, and lower relevant GSR reactivity. Japanese were found to have higher skin conductance than Americans in an experimental study involving the watching of a stressful film (Lazarus, Tomita, Opton, and Kodama, 1966). Ohnishi, Matsuno, Arasuna, and Suzuki (1976) found that detection rates for respiration were only accurate 46 percent of the time with Japanese subjects, while electrodermal measures had a 72 percent accuracy rate.

Waid and Orme (1981) compared skin conductance responses using a intrusive biographical interview among college students who were English, German, Irish, Italian, Jewish and Scottish. The findings indicated significantly smaller EDRs among the Irish than the other five groups. In addition, the data suggested that people are less aroused physiologically if the interview is conducted by an individual of their own background as opposed to an interview conducted by a person of a different background.

#### Ability to Control Self-Presentation

Mead (1951) observed that it is not unusual for Russians to change from extreme uncooperativeness to some semblance of cooperativeness. Mead compares this deportment with that of the Japanese prisoner and a Pole. In this comparison Mead states that the Japanese prisoner is likely to succumb to pressure within a

few hours after being taken prisoner. While a Pole is apt to "remain actively intransigent despite drastic changes in circumstances" (p. 37).

Dicks (1952) makes a similar observation of Russians stating that a "Russian may be rated by someone against whom he is powerless suddenly throw up his hands and say 'shoot me then if you like, what do I care?" Dicks suggests that such outbursts are an attempt to arouse guilt in the aggressor and appeal to his mercy. Anisimov (1951) makes the observation that the Soviet citizen will assume at the slightest provocation on a foreigner's part a mask of arrogance, a supreme contempt for what he will describe as the "outward" and "superficial" civilization of the West. Russians are apparently current in the state-of-the-art of self-control over mental states. Gabndreyeva and Peesahhov (1982) describes an elective course, offered at the University of Keegan designed for students who suffer from excessive shyness, test anxiety and similar problems. The training is in the form of autogenic training including self-suggestion, visualization, relaxation, and breathing exercises.

In a cross-cultural study of test anxiety in Iranian and Indian students, Sharma, Parnian, Speilberger (1983) found that Iranian students had higher anxiety as measured by the Test Anxiety Inventory than did the Indian students. The authors make

the observation that tricultural differences in the test anxiety levels of comparable students in Iran, India, and the United States indicate greater test anxiety in Eastern cultures.

Feldman (1983) believes there are significant cultural differences in the nature of nonverbal expressivity between Koreans and Americans with the former having a greater degree of control of facial nonverbal behavior. In a study conducted by Ekman, Friesen and Ellsworth (1972) comparing college students in the United States and Japan it was observed that both groups of students essentially manifested the same negative facial expressions while watching the stress film. However, in a subsequent interview with a member of their own culture, the Japanese displayed happier or more impassive faces in describing the stress film. The authors concluded that cultural rules can override universal experience.

Eysenck (1982) conducted an extensive study on cultural differences with regard to mean levels of anxiety, introversion-extroversion, and neuroticism. Eysenck's goal was to study the relationship of personality factors such as introversion-extroversion and blood type. He gathered data from Hofstede's study (1980) of over 70,000 subjects. Hofstede conducted an extensive survey of people in over 40 cultures, and one of the questions he asked them was as follows: "How often do you feel

nervous or tense at work?" Eysenck gathered these data, as well as data on blood types, in hopes of developing theories about the importance of genetics on personality differences between nations. Of special note to this study is that different countries were then lumped into the categories of high anxiety, average anxiety, and low anxiety. Countries that were found to fall in the high anxiety category were as follows: Japan, Greece, Belgium, Argentina, Colombia, Yugoslavia, and Taiwan.

Countries in the average range of anxiety on Hofstede's question were as follows: Italy, Spain, France, Turkey, West Germany, South Africa, and Canada. Countries found to fall in the low anxiety category were as follows: Australia, United States, Ireland, Great Britain, New Zealand, Sweden, and Denmark.

Further looking at the introversion-extroversion category, Eysenck labeled the following countries as falling into the extraverted category: Australia, Canada, Greece, India, Poland, South Africa, Sweden, United Kingdom, United States, and Italy. Countries falling in the introverted category were as follows: Egypt, France, West Germany, Iran, Japan, Turkey, and Yugoslavia.

Russell, Lewicka and Niit (1989), and Eckman and Friesen (1986) address through the use of research the question as to whether or not there is a range of emotions common to all cultures. Ekman and Friesen studied the use and interpretation of

facial expressions across cultures. They took photographs of different individuals with presumably certain emotions being experienced and showed those photos to subjects in a number of different cultures to determine how accurately they could pick out the designated emotion. Ekman, et. al. found that contempt was recognized accurately by subjects from Estonia S. S. R., Germany, Greece, Hong Kong, Italy, Scotland, Turnkey, United States, and West Sumatra. Ekman (1987) also found that there was considerable agreement among subjects from Estonia, West Germany, Greece, Hong Kong, Italy, Japan, Scotland, Sumatra, Turkey, and the United States in recognizing facial expression of the following emotions: happiness, surprise, sadness, fear, disgust, and anger. Wolfgang and Cohen (1988) developed a technique called the Wolfgang Interracial Facial Expression Test (WIFET) and found that it was, indeed, harder to read facial expressions when the expression was on the face of a person of another race. However, Wolfgang and Cohen noted that people can be trained to do so and stressed the need for a WIFET for each major culture to be used in future research.

Russell, Lewicka, and Niit (1989) developed what they term a circumplex model of affect. They used a multi-dimensional scaling of pair-wise similarity scores to develop his research. The bi-polar dimensions of pleasure-displeasure and arousal-sleepiness

were used, and subjects were asked to sort "feeling" related concepts in a pairing manner. The data were placed into the bipolar dimensional model. Subjects were from the language groups of Estonia S.S.R., Greece, Poland, and China. Russell found that if one plotted the different "feeling" concepts on a two dimensional graph where arousal and sleeping were the vertical line, and pleasure and displeasure were the horizontal line, that most of the "feeling" concepts (each represented by a dot) would tend to cluster in a circular manner. For example, the common concepts of afraid and angry (each represented by separate dots) tend to cluster in the upper-left quadrant formed by arousal and displeasure. The "feeling" concept of relaxed clustered in the lower-right quadrant designated by pleasure and sleeping. What this means is that people tend to use the word relaxed when they are describing sensations that are pleasurable and involve a lower state of physiological arousal. Likewise, when individuals use words such as afraid and angry, they tend to be describing a state which is a combination of physiological arousal, and the experience of displeasure or annoyance. Feelings of depression tend to show up in a quadrant between displeasure and sleepy, which indicates that the concept of depression taps into lower physiological arousal which is displeasurable in nature.

What is interesting in Russell's study is that he found that

if one placed the concepts on the graph, they tend to form a circular type of pattern and this circular pattern was essentially the same for Estonians, Greeks, Polish, and Chinese groups. The presence of such uniformity in the experience of emotions would suggest that polygraph examinations which tap those emotions should theoretically be possible in many cultures.

Tester/Testee Interactions and Critical Examiner Behaviors

Of all the topics reviewed in this study none are as widely represented in the research literature as that of tester/testee interactions and critical examiner behaviors.

Triandis and Brislin (1988) and Brislin (1989) emphasize that the concept of individualism and collectivism are important topics for coverage in cross-cultural training programs. In defining the two concepts the authors state that "individualism is characterized by the subordination of a group's goals to a person's own goals" while "collectivism is characterized by individuals subordinating their personal goals to the goals of some collectives" (p. 269). Triandis, et. al. suggest several principles that should be considered when training collectivists to interact with individualists and when training individualists to interact with collectivists. The authors of this study believe that the latter could be useful for American polygraph examiners testing individuals from a collectivistic culture. For this

reason these principles are presented in Appendix B.

Triandis (1985) points out that in general, collectivist cultures almost always assume that in-group members in authority do the right thing but out-group authorities are viewed with suspicion. In the case of polygraph testing of a member of a collectivist society it would appear to be wise to have the examiner be of the same culture and older in age. In the examination of a member of an individualistic culture such considerations would not be important.

Triandis associates the following cultures as being collectivistic: (1) Southern Europe, (2) Northern Europe (certain cultures that have retained traditional element(s)), (3) South America, and (4) East Asia. Triandis points out that most Western cultures are individualistic, especially the United States, Britain and the former British Empire.

Samover, Porter and Jain (1985) see the Soviet society as placing strong emphasis upon the group or collective, deriving its conception of the relationship between the individual and the state from communist doctrine.

Several studies have conducted cross-cultural research regarding body language. Watson and Graves (1966) comparing Arabs and Americans found that Arabs were more direct in face-to-face orientation, maintained less distance from one another and touched

more. The Arab subjects also had more direct visual contact and spoke louder than Americans. Patai (1973) states that in dealing with the Arab, exaggeration should not be taken literally but only as a technique used for effect. Watson (1970) studied the gaze of pairs of students from different countries. The highest level of gaze was manifested by Arabs and Latin Americans, the lowest by northern Europeans. Argyle, Furnham and Graham (1982) make the observation that too much eye contact is considered threatening to the Japanese.

Polygraph examiners would be well-advised to sit directly in front and close to Arabic and Latin examinees, rather than conduct the pre-test interview from behind a desk. Examinees should be prepared for occasionally being touched while establishing a rapport in the pre-test interview and not recoil or display negative emotions should the examinee do so. During the pre-test interview with Oriental (especially Japanese) subjects, too much eye contact might over-stimulate the subject and result in over-reactive (and hard to interpret) charts. For deceptive Japanese subjects, however, a long, direct eye-gaze during the post-test interrogation might increase anxiety and facilitate obtaining a confession.

Montague (1971) observed that people who speak Latin derived languages are more contact-oriented than those who speak Anglo-

Saxon derived languages. That is, people from places such as Italy, France, South America and Mexico may prefer more contact in social situations by coming closer, touching more, and using expressive gestures more than English, Canadians, and Americans. Chan (1979) found that the Chinese express anger and disgust by narrowing the eyes, the reverse of that found in the United States.

Cleveland, Mangone, and Adams (1960) state that in Asian countries the word "no" is rarely used. Alternatively, "yes" can mean "no" or "perhaps". They also observe that Arabs have a "run in" period of informal chat for approximately half an hour before getting down to business.

Examiners should be cautious that Japanese subjects may appear to be confessing when in fact they are just being polite. Many examiners make up a "saving face" kind of story to help deceptive subjects minimize their guilt and more readily confess. As the examiner carefully tries to sell the subject on the confession story, the Oriental examinee might sit quietly and politely nod, thereby appearing to agree with the examiner (i.e., confess). To prevent such mistakes, attempts to obtain confessions should never be made until after the polygraph testing of subjects from collectivist cultures. This is probably already DODPI doctrine, but deserves being underscored.

Several studies have investigated distance, seating arrangements, positioning and territoriality in general. Lomrantz (1976) found interaction distances among members of Mediterranean cultures such as Greeks, and Southern Italians preferred closer distances than Northern Europeans. Argentinean students sought the greatest distance from strangers, placing them almost nine times as far apart as friends. The Iraqis, on the other hand, preferred the smallest interaction distances and made little distinction based on relationship. Lomrantz also found in a study of student immigrants from Argentina, Iraq, and Russia found that all three cultures preferred closer distances with friends than strangers and with a fellow countryman than with an Israeli.

A few studies have reviewed the subject of positioning, distance, and arrangement across cultures. Pakistani subjects viewed opposite seating as more distant than did the other groups. Watson and Graves (1966) confirmed earlier observations that Arabs, compared to Americans and Western Europeans, stand much closer and also adopt a more directly facing orientation. Cline and Puhl (1984) in a comparison of desired seating arrangements found that Chinese preferred side seating compared to U.S. subjects. The authors felt that the corner seating preferred by U.S. subjects would be viewed as aggressive by Chinese subjects. Argyle (1982) makes several observations about intercultural

communication. In comparing Americans with Mexicans he notes that Mexicans regard openness as a form of weakness or treachery and are very protective of allowing the outside world to penetrate their thoughts. In discussing bodily contact Argyle states that cultures vary significantly. "Contact" cultures include Arab, Latin American, South European, and some African cultures. In "non-contact" cultures, bodily contact is confined to the family. Exceptions include greeting, parting, and professional behavior, for example hair stylists, physicians, etc.. Considerable anxiety can be created from bodily contact outside these settings.

In light of the limited information about the Soviet Union it might be useful for the purposes of this study to include some observations made by Dicks (1952). He notes that the Russian frequently appears to be the innocently accused and persecuted whose aggression is purely defensive. Anybody that looks at all safe tends to evoke the need to share which Dicks believes may explain in part the Russians falling easy victims to the secret informing systems.

#### A Rational-Deductive Approach

The great majority of research discussed so far focuses on the individual nuances of particular cultures. Very little is published synthesizing and comparing large numbers of cultures along universal dimensions. This results in a fragmentation of

knowledge about the fundamental similarities and differences among cultures.

Hofstede (1980) published a monumental work, integrating voluminous data on forty different countries. In this work he describes a research project on employees of a large, international conglomerate. The employees (in 40 countries) were surveyed extensively on work-related values using a questionnaire which correlated with well-known instruments such as Schultz's FIRO-B, England's Personal Values Questionnaire, and The Allport-Vernon-Lindzey Study of Values. The sample included unskilled, skilled, clerical, nonprofessional sales, technicians, professional and managerial workers.

The questionnaire was administered between 1967 and 1973 to 88,000 respondents and is easily one of the largest cross-cultural databases available today. Over 50 occupational groups in 40 countries were surveyed on overall job satisfaction, perceptions of stress, personal goals, attitudes, and beliefs and an extensive factor analysis carried out.

Hofstede's factor analysis resulted in four factors or dimensions which he labeled Power Distance (PDI), Uncertainty Avoidance (UAI), Individualism (IDV), and Masculinity (MAS). Hofstede notes that the type of supervision preferred by employees, their willingness to disagree with a boss, and how they

perceive their supervisor's style of decision making constitute the dimension of Power Distance. Respondents who score high on the PDI scale tend to prefer a hierarchy in social relationships in which everyone has his/her place, there is a clear demarcation between superiors and subordinates, power holders are entitled to privileges, other people can rarely be trusted, and power holders should attempt to look as powerful as possible.

Countries scoring high on this index include the Philippines, Mexico, Venezuela, and India, with Japan being just above the mean and West Germany (surprisingly) being below the mean. Changes in German society as a result of World War II may account for this finding.

Low PDI scores correlate with the following societal norms: no clear demarcation between superiors and subordinates, a belief in equal rights for all, harmony among fellows is prized, trust is an important value, and powerful people should attempt to look less powerful than they are. Countries scoring low on PDI include Austria, and Israel. Table 1 rank orders the ten countries highest in PDI and Table 2 rank orders the ten countries lowest in PDI. In addition, Table 1 and 2 show their rankings on UAI, IDV, and MAS.

Table 1  
Ten Countries Highest in Power Distance (PDI),  
with Relative Rankings in Uncertainty Avoidance (UAI),  
Individualism (IDV), and Masculinity (MAS)\*

<u>COUNTRY</u>	<u>PDI</u>	<u>UAI</u>	<u>IDV</u>	<u>MAS</u>
Philippines	1	32	28	10
Mexico	2	11	29	6
Venezuela	3	14	39	3
India	4	33	21	19
Yugoslavia	5	5	31	36
Singapore	6	39	33	24
Brazil	7	15	25	23
Hong Kong	8	36	31	17
France	9	6	11	29
Colombia	10	13	38	11

\* Source: G. Hofstede, Culture's Consequences, 1980.

Table 2  
Ten Countries Lowest In Power Distance (PDI),  
with Relative Rankings in Uncertainty Avoidance (UAI),  
Individualism (IDV), and Masculinity (MAS)\*

<u>COUNTRY</u>	<u>PDI</u>	<u>UAI</u>	<u>IDV</u>	<u>MAS</u>
Great Britain	30	34	3	8
Switzerland	31	24	14	5
Finland	32	23	17	35
Norway	33	27	13	38
Sweden	34	37	10	39
Ireland	35	35	12	7
New Zealand	36	29	6	15
Denmark	37	38	9	36
Israel	38	12	19	25
Austria	39	18	18	2

\* Source: G. Hofstede, Culture's Consequences, 1980.

Because of the extensive sample size and number of countries involved, Hofstede's four dimensions will serve as the organizing structure for the remainder of this section. He used the scores on these dimensions to group 40 countries into similar categories, with each category representing similar clusters of traits and norms. These categories were as follows: More Developed Asian, Less Developed Asian, Near Eastern, Germanic, Anglo, Nordic, More Developed Latin, and Less Developed Latin. These categories will serve as the titles for subsequent sections of this paper. However, Anglo and Nordic countries are excluded and a new category representing the Middle Eastern countries will be added (although Hofstede's research does not cover this grouping).

Hofstede points out that we all live with uncertainty about the future and our place in it and that we vary in the anxiety associated with this uncertainty. In organizations some people prefer a loosely structured work environment and tolerate ambiguity well. They tend to score low on Hofstede's Uncertainty Avoidance Index. High scorers tend to prefer security and structure in their lives. High anxiety and stress are common, as is a belief that "time is money", intolerance is common, and conversation-law-order are stressed. Japan, Germany, Greece, and Peru score about the mean on UAI. The United States scores below the mean.

The third dimension (Individualism) reflects differences in desire for personal time and needs versus loyal service to the company/organization/country. High scores on IDV reflect an emphasis on individual achievement, autonomy, and the self. The United States, Australia, Britain, and Canada score high on this dimension. Low scorers (such as Iran, Mexico, and Chile) emphasize a collective orientation, group belonging, and the source of security as deriving from the social grouping.

Masculinity is the final factor isolated by Hofstede. High scores reflect ego-oriented, assertive approaches to life and low scores reflect socially-oriented, nurturing approaches.

#### More Developed Asian-Japan

Hofstede's research places Japan in a category which is noted by high masculinity scores, high uncertainty avoidance, and medium individualism and power distance. One would, therefore, presume that many Japanese would prefer a relationship with supervisors (and potentially polygraph examiners) which were characterized by an emphasis on some of the following characteristics: an emphasis on obedience, high value placed on conformity, potentially authoritarian attitudes, and a preference for an autocratic style of decision making by people who have power over him or her. Hofstede's theory would predict that the Japanese would be fearful of disagreeing with their employers (and

potentially polygraph examiners or police officials). Also predicted would be a belief that time is money, a strong sense of nationalism, and a strong belief in experts and their knowledge.

#### Near Eastern Cultures

Near Eastern cultures were characterized by Hofstede as being high in Power Distance, high in uncertainty avoidance, low in individualism, and medium in masculinity. He listed four countries as falling into this category: Greece, Iran, Turkey, and Yugoslavia.

Hofstede includes Yugoslavia in the Near Eastern category because of the similarities along his four dimensions. He lists Yugoslavia as being high in power or distance, uncertainty avoidance, and low in the other two dimensions. However, Hofstede indicated that he did not have a representative sample of Yugoslavian workers and his insights on Yugoslavia may be of limited generalized ability.

#### Less Developed Asian

The less developed Asian nations which were noted by Hofstede (1980) were as follows: Pakistan, Taiwan, Thailand, Hong Kong, India, Philippines, and Singapore. For purposes of this paper China and Korea are also included. Hofstede characterizes most of the less developed Asian countries as being high in power distance, low to medium in uncertainty avoidance, low in

individualism, and medium in masculinity. The overall cultural stereotype that one might expect from such a constellation would be a strong emphasis on adherence to authority figures or respect for authority figures, less anxiety and internalized stress than one would expect in a country such as Japan, a strong interest in collective and cooperative functions, and somewhat above average emphasis upon achievement and assertiveness.

It is interesting to note that Singapore, Hong Kong, India, and Philippines all tend to have fairly high scores on masculinity and fairly low scores on uncertainty avoidance. Hofstede suggests that such countries could be conceptualized as "masculine risk takers" (p. 324) and notes that these are formally colonies of the United States or United Kingdom. Hofstede states that individuals from such countries tend focus on meeting their ego needs through achievement and hard work, and tend to be more motivated by a hope of success than by a fear of failure.

Malcolm (1951) served as a Justice in the Supreme Court of the Philippines and notes in his analysis of Philippine culture that the Chinese minority have a very strong reputation for honesty and integrity. It would probably be a safe to suggest that there are probably differences among the Chinese who live in mainland China, low zone Taiwan, and those in areas such as Hong Kong. For example, Hofstede found that Taiwanese tended to be

fairly high on uncertainty avoidance, and individuals from Hong Kong tended to be fairly low on uncertainty avoidance. This would suggest that a hope of success is a stronger motivator for citizens in Hong Kong and that fear of failure may be a somewhat stronger motivator for citizens in Taiwan. To the extent that low uncertainty avoidance in a culture predicts low levels of anxiety in individuals from that culture, it would be expected that subjects from Singapore, Hong Kong, India, and the Philippines would be low in anxiety and would need more stimulation in the pretest interview in order to obtain good polygraph charts. Individuals from Thailand, Taiwan, and Pakistan might require less stimulation and more reassurance in order to get readable polygraph charts. Subjects from these last countries might be well motivated through fear of failure or punishment to confess when they are deceptive.

#### Middle Eastern

Middle Eastern countries would include Syria, Iraq, Saudi Arabia, Egypt, Libya, Jordan, and Lebanon. Israel was considered by Hofstede in his work to have a cluster of dimensions more similar to the Germanic countries and is considered to be part of that cluster for our discussion.

One of the most unifying factors in looking at the cluster of countries in the Middle East is that they are primarily Arabic

speaking and have a common religious heritage of the Moslem faith.

### The Latin Countries

The Latin countries may be divided approximately into the more developed cluster (Belgium, France, Argentina, Brazil, Spain, and Italy) and the less developed Latin countries (Colombia, Mexico, Venezuela, Chile, Peru, and Portugal). Little data are available on the Central American countries.

Using Hofstede's data, these countries generally score high on measures of power distance and uncertainty avoidance. Business and governmental organizations in these countries tend to gravitate toward pyramid shaped bureaucracies. The emphasis is on structure, rules, and conformity in order to avoid anxiety. These countries are predominately Catholic in their religion. Adherence to values such as veracity will be stronger in the presence of the organization (church, government, etc.), but would weaken outside the organization's influence.

Hofstede discussed the development of the conscience (superego) based upon an interaction of uncertainty avoidance and power distance. For example:

A high UAI score was related to a strong superego.

However, in a high PDI environment this superego will be personified in the form of a powerful person (the father, the leader, the boss). People will be able to

blame the powerful people for their ills (a favorite pastime in the Latin countries) and will feel relatively free to sin if the boss isn't looking. In the higher UAI, low PDI countries this escape is not available, and the superego is internalized (Hofstede, 1980, p. 316).

Iran, Thailand, Pakistan, and Taiwan tend to cluster near the Latin countries on these dimensions. Implications for polygraph practice are that if the examiner adheres to religious sanctions for truth and the need for redemption or quotes from the Bible (or Koran as appropriate) the interviews may be facilitated.

#### The Germanic Countries

Austria, West Germany, Switzerland, and Israel share a constellation of cultural values. They share low scores on power distance and medium to high scores on uncertainty avoidance, masculinity and individualism. Perhaps the placement of Israel in this grouping is to be expected, given the European post-Holocaust emigration.

The Germans, Swiss, and Austrians tend to be more motivated by "ego security" needs and Israel by group solidarity needs. On average, one would expect the needs of the group to have precedence over the needs of the individual. These same four countries tend to cluster into what could be called the

"internalized superego" (Hofstede, 1980, p. 316) category.

Moderate uncertainty avoidance combined with low power distance suggests strong, internalized conception of right and wrong which operate in the absence of outside coercion.

Organizations in cultures which combine group solidarity, a hard-worker orientation, and a strong conscience tend to run like "well-oiled machines" (Hofstede, 1980, p. 319). One could speculate that soldiers found in Israel and the Germanic countries would be more likely to continue to attempt to accomplish their assigned missions, even if their leaders were killed or missing in the confusion of battle than soldiers from categories such as the Latin grouping.

Gorkin's (1986) study of counter transference noted earlier in this paper also illustrates the tendency toward guilt by Israeli psychotherapists. This illustrates the strong, internalized superego hypothesized by Hofstede for the low PDI, high uncertainty avoidance countries. Perhaps it's not so unusual that psychoanalysis (with its focus on guilt) is still strongest in Germany, Switzerland, Austria and Brazil; or that its founder (*viz*, Freud) was an Austrian!

It is interesting to note that power distance was relatively low in the Germanic countries. This does not fit a popular conception of the Germanic-speaking peoples as being high

disciplined and conforming to authority. Hofstede suggests one possible explanation. Many of his questionnaire items focus on willingness to disagree with the boss.

If one were to look at the potential role that could be played by the polygraph examiner and present it as a dichotomy between two different types of approaches, one could label one end relaxed and the other end professional. The professional examiner would be a person who strongly emphasized rigid adherence to rules and regulations, would be dressed in a semi-military and somewhat rigid-appearing manner, and would project the image of being a "no nonsense, down to business" type of person. The opposite pole of this stereotype would be the very relaxed, laid-back, casually dressed, and imprecise in speech and behavior kind of person. The reader is directed to Table 3 which contains the hypothesis based on Hofstede's four dimensions across 40 countries. In looking at the section under Japan note that under examiner role the term used is professional. The hypothesis is that a polygraph examiner working with a Japanese subject would have the most positive effect on that subject if he or she assumed a role approximating the professional end of the continuum. The professional behaviors would consist of traits already noted in the expectation that the Japanese subject would be more comfortable with such an individual and be more likely to respect ~~the~~ the professional approach.

Table 3

Potential International Approaches Using Hofstede's (1980) Dimensions Across Cultures

Country	Examiner Role		Polygraph Validity Approach		Individualism		Masculinity	
	Relaxed (Low PDI)	Professional (High PDI)	Stimulation (Low UAI)	Infallibility (High UAI)	Self Blame (Low IDV)	Other (High IDV)	Ego (High MAS)	Social Goals (Low MAS)
Argentina	✓		✓			✓	✓	
Australia	✓		✓			✓	✓	
Austria	✓			✓	✓		✓	
Belgium		✓	✓		✓		✓	
Brazil		✓		✓		✓		✓
Canada	✓		✓		✓		✓	
Chile		✓	✓			✓		✓
Colombia		✓		✓		✓	✓	
Denmark	✓		✓		✓			✓
Finland	✓		✓		✓		✓	
France		✓		✓	✓			✓
Great Britain	✓		✓		✓		✓	
West Germany	✓			✓	✓		✓	
Greece		✓	✓			✓	✓	
Hong Kong		✓	✓			✓	✓	
India		✓	✓		✓		✓	
Iran		✓		✓		✓		✓
Ireland	✓		✓		✓		✓	
Israel (Jews)	✓			✓	✓			✓
Italy	✓			✓	✓		✓	
Japan		✓		✓	✓		✓	
Mexico		✓		✓		✓	✓	
Netherlands	✓		✓		✓			✓
Norway	✓		✓		✓			✓
New Zealand	✓		✓		✓		✓	
Pakistan		✓		✓		✓		✓
Peru		✓	✓			✓		✓
Philippines		✓		✓		✓	✓	
Portugal		✓	✓			✓		✓
South Africa	✓		✓		✓		✓	
Singapore		✓	✓			✓		✓
Spain		✓	✓			✓		✓
Sweden	✓		✓		✓			✓
Switzerland	✓		✓		✓		✓	
Taiwan		✓		✓		✓		✓
Thailand		✓		✓		✓		✓
Turkey		✓		✓		✓		✓
USA	✓		✓		✓		✓	
Venezuela		✓		✓		✓		✓
Yugoslavia	✓		✓			✓		✓

Note that the next column in Table 3 is labeled Polygraph Validity Approach. This column is designed to generate hypotheses about how the polygraph examiner should best approach the examinee regarding the issue of a polygraph's validity. There is considerable anecdotal information in the literature and debate about the best way to introduce the technique and technology to the examinees. One approach stresses the simple explanation that the polygraph is valid, almost to the point of being infallible and that the examiner will make no mistakes. This is designed to convince the examinee that no mistakes will be made and allow the truthful subject to relax and the deceptive subject to experience sufficient fear to be detected. Some examiners stress the importance of stimulating subjects with cards, test, and other techniques for convincing them that the polygraph is very valid. In the topology noted on Table 3, infallibility is used in the column in which a country or culture has been listed by Hofstede as being high in uncertainty avoidance. Individuals who are high in uncertainty avoidance would be anxious people with strong development of conscience and probably would not need to be stimulated to a great extent. On the contrary, such people might be overly anxious and in need of calming. An entry of infallibility in Table 3 indicates that one would expect individuals from these cultures to be similar and a simple

explanation by the examiner stating that the polygraph was infallible and valid would be sufficient. In countries listed by Hofstede as low in uncertainty avoidance, the term stimulation is used in Table 3 to suggest the possibility that such subjects might need extra stimulation to ensure that they will respond physiologically during the test.

Hofstede's data suggest that the Japanese come from a culture high in uncertainty avoidance, and one would hypothesize that the infallibility approach would be appropriate. The third column of Table 3 is a listing based upon the individualism score for different countries. It is designed to generate a hypothesis about how individuals who are deceptive might respond to different interrogational ploys. Column 4 of Table 3, which is based upon the masculinity dimension, is similarly designed. Countries in which the emphasis is upon high individualism would be expected to be oriented toward the self, toward furtherance of the examinee's self-interest. Those scoring in the low range of individualism would be expected to be more other-directed, with an emphasis on others in the environment. Japan tended to score in the medium to high range on individualism and in the high range in masculinity. A high individualism score would presumably result in a self-orientation. A high masculinity score would presumably result in what is noted in Table 3 as an ego approach. Whereas individuals

high in masculinity would be expected to be very aggressive in achieving goals for themselves, those at the low end would be expected to be more socially oriented, that is, oriented toward humanistic types of goals. If one looks at Japan and notes a self and ego orientation (based upon high scores in individualism and masculinity), one would expect that the best approach to take in post-test interrogation would be to focus on the ego needs of the individual rather than needs for affiliation.

The United States score on individualism was higher than any other of the 40 countries surveyed by Hofstede. The other Anglo countries (Australia, Great Britain, Canada, etc.) followed closely behind the USA. One would, therefore, hypothesize that most polygraph subjects from other countries would view the American examiner as being more of an individualist than they. American emphasis on individual action and responsibility suggests that an American would focus more on his or her contribution to well-being, defending own interests, and a personal philosophy of humankind than people from other cultures. This tendency might result in a stronger tendency to accept self-blame, rather than project blame onto one's organization or associates.

In conclusion, the results of this report strongly suggest that relatively little exists in the literature involving experimental research that directly addresses the cross-cultural

factors identified as subject matter for this review. The literature does contain common characteristics across cultures, with considerable variation along a continuum. It also discusses characteristics that are idiosyncratic of a culture or a minimum number of cultures. However, in general, these cultural characteristics are either irrelevant or too general to be useful to a polygraph examiner. It is clear that in order for this void to be corrected there must be a substantial effort in research specifically designed to answer those cross-cultural questions confronting today's polygraph examiners.

REFERENCES

- Anisimov, O. (1951). The Soviet citizen - a profile. The Russian Review, 10, 15-23.
- Argyle, M. (1982). Inter-cultural communication. In S. Bochner (Ed.). Cultures in Contact. New York: Pergamon Press, 75-85.
- Barland, G. (1988). The polygraph in practice. In Anthony Gale (Ed.) The Polygraph Test: Lies, Truth and Science (pp. 73-95). Beverly Hills: Sage Publications.
- Barnouw, F. (1985). Culture and Personality. Homewood, IL: The Dorsey Press.
- Bauer, A. (1952). The Development History of The Political Attitudes of Individuals Toward The Soviet Regime. Human Resources Research Institute. Technical Research Report No. 6, Maxwell Air Force Base, Alabama.
- Bochner, S. (1982). The social psychology of cross-cultural relations. In S. Bochner (Ed.) Cultures in Contact. New York: Pergamon Press.
- Brislin, R. (Personal Communication, October 17, 1989).
- Brislin, R. W. (1983). Cross-cultural research on psychology. Annual Review of Psychology, 34, 363-400.
- Chan, J. (1979). The Facial Expressions of Chinese and Americans. Unpublished PhD Thesis, South Eastern University, Louisiana.
- Cleveland, H., Mangone, G. J., & Adams, J. G. (1960). The Overseas Americans. New York: McGraw-Hill.
- Cline, R. J., & Puhl, C. A. (1984). Gender, culture, and geography: a comparison of seating arrangements in the United States and Taiwan. International Journal of Intercultural Relations, 8(2), 199-219.
- Danton, G. H. (1938) The Chinese People: New Problems and Old Backgrounds. Boston: Marshall Hones Co.
- De Vos, George. (1960). Achievement and innovation in culture and personality. The Study of Personality: An Interdisciplinary Appraisal. New York: Holt-Rinehart, 349-370.

De Vos, George. (1968). The relation of guilt toward parents to achievement and arranged marriage among the Japanese. Psychiatry, 23(3).

Dicks, H. V. (1952). Observations on contemporary Russian behavior. Human Relations, 5, 2. Ann Arbor: The Research Center of Group Dynamics.

Dickson, V. (1949). Artistic House-Decoration In Riyadh (Vol. 49). London: The Royal Anthropological Institute.

Drgyle, M. (1982). Inter-cultural communion. In S. Bochner (Ed.), Cultures In Contact (pp. 75-85). New York: Pergamon Press.

Ekman, P., & Friesen, W. V. (1986). A new pan-cultural facial expression of emotion. Motivation and Emotion, 10(2), 159-168.

Ekman, P., et al. (1987). Universals and cultural differences in the judgements of facial expressions of emotion. Journal of Personality and Social Psychology, 53(4), 712-717.

Ekman, P., Friesen, W. V., & Ellsworth P. (1972). Emotion in the Human Race. New York: Pergamon.

Eysenck, H. J. (1982). The biological basis of cross-cultural differences in personality: blood group antigens. Psychological Reports, 51, 531-540.

Feldman, R. S. (1983) Nonverbal disclosure of deception in urban Koreans. Journal of Cross-Cultural Psychology, 10(1), 73-83.

Gabdreyeva, G. & Peisakhov, N. (1982). A method of self-control over mental states. Voprosy Psichologii, 5, 101-108.

Gorkin, M. (1986). Countertransference in cross-cultural psychotherapy: The example of Jewish therapist and Arab patient. Psychiatry, 49, 69-79.

Gudykunst, W. B., & Nishida, T. (1986). Attributional confidence in low- and high-context cultures. Human Communication Research, 12(4), 525-549.

Guthrie, G. M., Verstraete, A., Dunes, M. M., & Stern, R. M. (1975). Symptoms of stress in four societies. Journal of Social Psychology, 95, 165-172.

Hofstede, G. (1980). Culture's Consequences: International Differences In Work-Related Values. Beverly Hills, CA: Sage Publications.

Howard, A., Shudo, K., & Umeshema, M. (1983). Motivation and values among Japanese and American managers. Personnel Psychology, 36, 355-366.

Johnson, W. R. (1987). The ambivalent polygraph. International Journal of Intelligence and Counterintelligence, 1(3).

Kaganiec, H. J. (1956). Lie-detector tests and "freedom of the will" in Germany. Northwestern University Law Review, 51, 446-460.

Krober, A. L., & Kluckhohn, C. (1952). Culture: A Critical Review of Concepts and Definition. Cambridge, Mass.: Peabody Museum, 47, 1.

Kugelmass, S., & Lieblich, I. (1968). Relation between ethnic origin and GSR reactivity in psychophysiological detection. Journal of Applied Psychology, 52(2), 158-162.

Lazarus, R. S., Tomita, M., Opton, Z., & Kodama, M. (1966). A cross-cultural study of stress-reaction patterns in Japan. Journal of Personality and Social Psychology, 4, 622-633.

Lee, D. D. (1953). Greece. In Margaret Mead, ed., Cultural Patterns and Technical Change. Paris: UNESCO.

Levinson, D. (1989) The human relations area files. RSR Fall 83-86.

Lieblich, R., Kugelmass, & Ben-Shakhar, G. (1973). Psychophysiological baselines as a function of race and ethnic origin. Psychophysiology, 10(4), 426-429.

Linton, R. (1945). The Cultural Background of Personality. New York: Appleton-Century.

- Malcolm, G. A. (1951). First Malayan Republic. Boston: Christopher Publishing.
- Mead, M. (1951). Soviet Attitudes Toward Authority: A Interdisciplinary Approach to Problems of Soviet Character. New York: McGraw-Hill Book Co., Inc.
- Meyjes, P. (1961). Scientific criminal investigation techniques under Dutch law. Journal of Criminal Law and Police Science, 51, 643-660.
- Montague, A. (1971). Touching. New York: Harper and Row.
- Ohnishi, K., Matsuno, K., Arasuna, M. & Suzuki, A. (1976). The objective analysis of physiological indices in the field of detection of deception. Reports of the National Institute of Police Science, 29(3), 181-188.
- Patai, R. (1973). The Arab Mind. New York: Charles Scribner's Sons.
- Russell, J. A., Lewicka, M., & Niit. (1989). A cross-cultural study of a circimplex model of affect. Journal of Personality and Social Psychology, 57(5), 848-856.
- Sanover, L. A., Porter, R. E. & Jain, N. C. (1985). Understanding Intercultural Communication. Belmont, CA: Wadsworth Publishing Company.
- Sharma, S., Parnean, S., & Speilberger, C. (1983). A cross-cultural study of test anxiety levels in Iranian and Indian students. Personality and Individual Differences, 4(1), 117-120.
- Triandis, H. C. (1980). Introduction to handbook of cross-cultural psychology. In Triandis, H. and Lambert, W. (Eds.) Handbook of Cross-Cultural Psychology Perspectives. Boston, Mass.: Allyn and Bacon, Inc.
- Triandis, H. (1985). Some major dimensions of cultural variation in client populations. In Pederson, P. (Ed.), Handbook of Cross-Cultural Counseling and Therapy (pp. 21-44). Westport, Conn.: Greenwood Press.

Triandis, H. C., & Brislin, R. (1988). Cross-cultural training across the individualism - collectivism divide. International Journal of Intercultural Relations, 12, 269-289.

Tylor, E. B. (1877). Primitive Culture. Reseaches into the Development of Mythology, Philosophy, Religion, Language, Art, and Customs. New York: Henry Holt.

Waid, W. M., & Orne, M. T. (1981). Cognitive, social, and personality processes in the psysiological detection of deception. In Berkowitz, L. (Ed.), Advances in Experimental Social Psychology. New York: Academic Press.

Wallbott, H. G., & Sherer, K. R. (1986). How universal and specific is emotional experience? Evidence from 27 countries on five continents. Social Science Information, 25, 4, 763-795.

Watson, O. M. (1970). Proxemic Behavior: A Cross-Cultural Study. Morton, The Hague.

Watson, O. M., & Graves, T. D. (1966). Quantitative research in proxemic behavior. American Anthropologist, 68, 971-985.

Wilson, A. T. (1932). Persia. London: Ernest Benn Limited.

Wolfgang, A., & Cohen, M. (1988). Sensitivity of Canadian, Latin Americans, Ethiopians, and Israelis to interracial facial expressions of emotions. International Journal of Intercultural Relations, 12, 139-151.

Wu, J. C. H. (1967), Chinese legal and political philosophy. In Charles A. Moore, (Ed.) The Chinese Mind, (pp. 221-235). Honolulu: University of Hawaii Press.

## Appendix A

### Databases Searched By Computer

#### **EMBASE**

(Formerly EXCERPTA MEDICA)

The Excerpta Medica database, EMBASE, is one of the leading sources for searching the biomedical literature. It consists of abstracts and citations of articles from over 4,000 biomedical journals published throughout the world. It covers the entire field of human medicine and related disciplines. The online file corresponds to the 46 specialty abstract journals and 2 literature indexes which make up the printer Excerpta Medica, plus an additional 100,000 records annually that do not appear in printed journals.

#### **LEGAL RESOURCE INDEX**

LEGAL RESOURCE INDEX provides cover-to-cover indexing of over 750 key law journals and six law newspapers plus legal monographs. The LEGAL RESOURCE INDEX comprehensively indexes articles, book reviews, case notes, president's pages, columns, letters to the editor, obituaries, transcripts, biographical pieces, and editorials providing access to valuable secondary information for the legal professional and others.

Appendix A (Continued)

**MEDLINE**

MEDLINE (MEDLARS onLINE), produced by the U.S. National Library of Medicine, is one of the major sources for biomedical literature. MEDLINE corresponds to three printed indexes: Index Medicus, Index to Dental Literature, and International Nursing Index. MEDLINE covers virtually every subject in the broad field of biomedicine. MEDLINE indexes articles from over 3,000 international journals published in the United States and 70 other countries. Citations to chapters or articles from selected monographs were also included from May 1976 through 1981.

MEDLINE is indexed using NLM's controlled vocabulary MeSH (Medical Subject Headings). Over 40% of records added since 1975 contain author abstracts taken directly from the published articles. Over 250,000 records are added per year.

**MENTAL HEALTH ABSTRACTS**

The MENTAL HEALTH ABSTRACTS database cites worldwide information relating to the general topic area of mental health. Sources include 1,200 journals from 41 different countries, in 21 different languages, books, monographs, technical reports,

Appendix A (Continued)

workshop and conference proceedings, and symposia. Also included are Far Eastern literature and non-print media.

**NTIS**

NTIS is available from DIALOG as an online database and in compact-disc format, DIALOG NTIS OnDisc. The NTIS database consists of government-sponsored research, development, and engineering plus analyses prepared by federal agencies, their contractors, or grantees. It is the means through which unclassified, publicly available, unlimited distribution reports are made available for sale from agencies such as NASA, DDC, DOE, HUD, DOT, Department of Commerce, and some 240 other agencies. In addition, some state and local government agencies now contribute their reports to the database.

Truly multi-disciplinary, this database covers a wide spectrum of subjects including: administration and management, agriculture and food, behavior and society, building, business and economics, chemistry, civil engineering, energy, health planning, library and information science, materials science, medicine and biology, military science, transportation, and much more.

Appendix A (Continued)

**PAIS INTERNATIONAL**

PAIS (Public Affairs Information Service) INTERNATIONAL is a bibliographic index to the public policy literature of business, economics, finance, law, international relations, government, political science, and other social sciences. It provides references in English to material published worldwide in any six languages: English, French, German, Italian, Portuguese, and Spanish. Approximately 60 percent of the items indexed were originally published in English. It covers printed material in all formats: periodical articles; books; state, local, federal, and non-U.S. government documents; committee hearings, pamphlets; and the reports of public and private organizations. PAIS provides comprehensive coverage of all issues of public policy relating to social, economic, or political problems, including areas such as taxation, multinational corporations, banking, labor, insurance, crime, health, international relations, international trade and specific industries.

**PsycALERT**

PsycALERT is the companion file to PsycINFO (File 11). PsycALERT provides full bibliographic information and brief

Appendix A (Continued)

indexing for all material subsequently included in PsycINFO.

Coverage includes all of the 1,300 journals and serial publications (with the exception of Dissertation Abstracts

International) that comprise the coverage of PsycINFO. Items will be available for searching on PsycALERT in as little as one to two weeks after the receipt of the item by the American Psychological Association.

**PsycINFO**

PsycINFO covers the world's literature in psychology and related disciplines in the behavioral sciences. Over 1,300 journals, technical reports, monographic series, and dissertations are scanned each year to provide coverage of original research, reviews, discussion, theory, conference reports, panel discussions, case studies, and descriptions of apparatus.

**ONTAP SCISEARCH**

ONTAP SCISEARCH contains approximately 30,000 records from early 1986 in File 433, SCISEARCH. ONTAP SCISEARCH provides a low-cost training opportunity for use of a database dealing in the multidisciplinary literature of science and technology. Offline prints are not available in ONTAP files.

## Appendix A (Continued)

### **SCISEARCH**

SCISEARCH is a multidisciplinary index to the literature of science and technology prepared by the Institute for Scientific Information (ISI). It contains all the records published in Science Citation Index (SCI) and additional records from the Current Contents series of publications that are not included in the printed version of SCI. SCISEARCH is distinguished by two important and unique characteristics. First, journals indexed are carefully resulting in the inclusion of 90 percent of the world's significant scientific and technical literature. Second, citation indexing is provided, which allows retrieval of newly published articles through the subject relationship established by an author's reference to prior articles. SCISEARCH covers every area of the pure and applied sciences.

### **SOCIOLOGICAL ABSTRACTS**

SOCIOLOGICAL ABSTRACTS covers the world's literature in sociology and related disciplines in the social and behavioral sciences. Over 1,200 journals and other serial publications are scanned each year to provide coverage of original research, reviews, discussions, monographic publications, conference reports, panel discussions, and case studies.

Appendix A (Continued)

**SOCIAL SCISEARCH**

SOCIAL SCISEARCH is a multidisciplinary database indexing every significant item from the 1,500 most important social sciences journals throughout the world and social sciences articles selected from 3,000 additional journals in the natural, physical, and biomedical sciences. SOCIAL SCISEARCH includes many important monographs as well. SOCIAL SCISEARCH covers every area of the social and behavioral sciences.

## Appendix B

### Training Individuals to Interact With Collectivists \*

1. Learn to pay attention to group memberships. The Other's behavior depends on norms of the ingroups that are important in the Other's life.
2. Keep a close eye on the attitudes of the Other's ingroup authorities. It is likely that the Other's attitudes and behaviors will reflect them.
3. When the Other's group membership changes there is a high probability that the Other's opinions, attitudes, and even "personality" will change to reflect the different group.
4. Spend some time finding out about the Other's ingroups.
5. Do not use yourself as a yardstick of involvement in activities that involve ingroups. The Other is likely to be much more involved with groups than you are used to seeing in your culture.
6. The Other is more comfortable in vertical than in horizontal relationships.
7. If you want the Other to do something, try to see if the Other's superiors can give a signal that they approve of such behavior.
8. If you want the Other to do something, show how such behavior will promote the Other's ingroups.

Appendix B (Continued)

9. The Other will be uncomfortable in competitive situations.
10. Emphasize harmony and cooperation, help the Other save face, and avoid confrontation.
11. If you have to criticize, do so very carefully. Keep in mind that you cannot criticize the Other's ideas without criticizing the person. In the Other's culture people generally do not say "No" or criticize. They indicate disapproval in very subtle ways.
12. If the Other comes from east Asia, expect extraordinary and unjustified modesty. If you give presentations, consider beginning in a more modest manner than you would in your own country.
13. The Other is likely to be comfortable in unequal status relationships. Status in the Other's culture is likely to be based on age, sex, family name, place of birth and the like. Your social position in your own culture, insignia, and symbols of status count more in the Other's culture than in your own. Do not be shy about displaying them. Your position in your own society should be mentioned, so the Other knows how to relate to you. Furthermore, age is an important attribute of status in the Other's culture. It is likely that even small differences in age

Appendix B (Continued)

(e.g., one day older) will result in more respect for the older person. Collectivists will try to convert all horizontal relationship into vertical relationship.

14. When you meet the Other for the first time expect the social behavior to be more formal than you are used to in your country. The behavior will be polite, correct, but not especially friendly. You may have to be introduced to people by someone you know who is also respected by the Other. You have to establish yourself as an ingroup member, by showing proper concern for the ingroup, before the behavior becomes friendly. For example, visiting ingroup members in the hospital, spending free time with ingroup members, giving gifts, and making sacrifices for the group can help establish you as an ingroup member. Then behavior becomes more genuinely friendly.

15. Let the Other guide you toward intimacy. Be willing to disclose personal information, when asked for, but avoid giving information that makes you too different from the Other. However, avoid discussions about sexuality, or any topic that might dishonor the ingroup. Collectivists tend to present themselves in the best possible light and give socially desirable answers much more than do individualists (Hui, in press).

Appendix B (Continued)

16. Do not jump to conclusions when the Other makes what appears to be a strange suggestion. Try to "play along" until you get more information.

17. Learn to understand illicit behavior. Remember that societies differ in the extent they force people to act or not act in illicit ways. The Other's culture is more likely to tolerate such behavior than is yours.

\* Source: Triandis & Breslin, International Journal of Intercultural Relations, 12, 269-289.